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10/593,328	09/18/2006	Peter James Poole	41557-236442	7360

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VENABLE LLP
P.O. BOX 34385
WASHINGTON, DC 20043-9998

EXAMINER	
YUSHIN, NIKOLAY K	
ART UNIT	PAPER NUMBER
4116	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/593,328	POOLE, PETER JAMES	
	Examiner	Art Unit	
	NIKOLAY YUSHIN	4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *09/18/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14 -26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/18/2006; 12/14/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: In [0029}, angled barrier implant is marked as 56 – it should be 58 (as shown in Fig. 3), and parallel barrier implant is marked as 58 – it should be 56 (as shown in Fig. 3). Appropriate correction is required.

Claim 14 says that an image area divided into a plurality of channels by channel **edges**. There is no mention of edges in specification. Examiner assumes that the channel edge is the same as the channel wall. Claim 20 says that CCD imager, comprising an anti-blooming structure disposed adjacent the channel edge in a path other than the principal path. There is no description / explanation of the anti-blooming structure in specification. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14 – 19, 24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Pool, UK Patent Application, GB 2324197.

In re Claim 14, Pool discloses a CCD imager of the type having an image area in which charge is generated and clocked to an output (Abstract, (57)), comprising an image area divided into a plurality of channels by channel edges(walls), at least some of the channels 7 being further divided by path defining structures to create at least a principal path 7 and one or more secondary

paths (8, 9) (Fig. 3, Page 10, lines 1 -3 from bottom; page 11, lines 1 - 10). Claim 14 includes also functional language "charge overflowing from the principal path during charge transfer is retained within the one or more secondary paths before the channel edges". Note that functional language in a device claim is directed to the device per se, no matter which of the device's functions is referred to in the claim. See In re Ludtke and Sloan, 169 USPQ 563 at 567, and In re Swinehart, 169 USPQ 226, MPEP 2114 [R-1] Apparatus and Article Claims — Functional Language. APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM THE PRIOR ART.

In re Claim 15, Pool discloses a CCD imager, wherein the secondary paths (8, 9) are arranged to converge on the principal path 7 (Fig. 3, Page 10, lines 1 -3 from bottom; page 11, lines 1 - 10).

In re Claim 16, Pool discloses that the principal path 7 is defined at one side of the channel 1 (Fig. 3, Page 10, lines 1 -3 from bottom; page 11, lines 1 - 10).

In re Claim 17, Pool discloses that the principal path 7 is defined in the middle of the channel (Fig. 3, Page 10, lines 1 -3 from bottom; page 11, lines 1 - 10).

In re Claim 18, Pool discloses that the width of the channel 1 is divided into the principal path 7 and two or more secondary paths (8, 9) (Fig. 3, Page 10, lines 1 -3 from bottom; page 11, lines 1 - 10).

In re Claim 19, Pool discloses all imitations of claim 19, including the path defining structures (7, 8, 9) (Fig. 3). Claim 19 contains also functional language "… allow signal charge above a predetermined amount to spill from either the principal path or a secondary path into an adjacent secondary path". Note that functional language in a device claim is directed to the

device per se, no matter which of the device's functions is referred to in the claim. See In re Ludtke and Sloan, 169 USPQ 563 at 567, and In re Swinehart, 169 USPQ 226, MPEP 2114 [R-1] Apparatus and Article Claims — Functional Language. APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM THE PRIOR ART.

In re Claim 24, Pool discloses that the principal path 7 is through the channel and the one or more secondary paths (8, 9) are across the channel width (Fig. 3, Page 10, lines 1 -3 from bottom; page 11, lines 1 - 10). Claim 24 contains also functional language "the paths being arranged such that charge spilling from the principal path fills the adjacent secondary paths in turn such that the minimum width of the channel is used to transfer the charge." Note that functional language in a device claim is directed to the device per se, no matter which of the device's functions is referred to in the claim. See In re Ludtke and Sloan, 169 USPQ 563 at 567, and In re Swinehart, 169 USPQ 226, MPEP 2114 [R-1] Apparatus and Article Claims — Functional Language. APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM THE PRIOR ART.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pool as applied to claim14 above, and further in view of Hyneck, US 2002/0191093.

In re Claim 20, Pool discloses all limitation of claim 20 except for that an anti-blooming structure disposed adjacent the channel edge in a path other than the principal path. Hynecek discloses an anti-blooming structure disposed 210 adjacent the channel edge in a path other than the principal path 202 (Fig.2, [0019]). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Pool and Hynecek and use the specified structure for higher dynamic range readout as suggested by Hynecek ([0011).

Claims 21 and 22 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Pool as applied to claim14 above, and further in view of Angle, US 4,199,691.

In re Claim 21, Pool discloses all limitation of claim 20 except for that the path defining structures comprise compensating barrier implants. Angle discloses that the path defining structures comprise compensating barrier implants (column 1, lines 61 -67). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Pool and Angle for better controlling the flow of charge as suggested by Angle (Column 1, line 10).

In re Claim 22, Angle discloses that the path defining structures comprise additional buried channel implants (column 1, lines 39 – 46).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pool as applied to claim14 above, and further in view of Hatano et al., US 6,207,981.

In re Claim 23, Pool discloses all limitations of claim 23 except for that the path has a V-shaped potential profile. Hatano discloses that the path has a V- shaped potential profile (column 3, lines 58 – 60). It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Pool and Hatano and use the specified potential profile for smoother transfer electric charges as suggested by Hatano (Column 2, lines 42-44).

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pool as applied to claim14 above, and further in view of Parrish et al., US 4,380,056.

In re Claim 25, Pool discloses all limitations of claim 25 except for that the channel is formed in a serial register. Parrish teaches that the channel is formed in a serial register (Column 1, lines 23 -24). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Pool and Parrish and to form the channel as a serial register for improving production yield and charge transfer speed as suggested by Parrish (Column 2, lines 3- 5).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIKOLAY YUSHIN whose telephone number is (571)270-7885. The examiner can normally be reached on Monday through Friday from 8 a.m. to 5 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kiesha Rose can be reached on 571-272-1844. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NIKOLAY YUSHIN/
Examiner, Art Unit 4116

NIKOLAY YUSHIN
Examiner
Art Unit 4116

/Kiesha L. Rose/
Supervisory Patent Examiner, Art Unit 4116